

5 CLAIMS

- 10 1. A decoder (203) comprising a decoding element (208) arranged to operate in a first mode for decoding a turbo encoded data stream and in a second mode for decoding a viterbi encoded data stream, wherein the decoder (203) is characterised in that the decoding element (208) is responsive to a first control signal for switching from the first mode to the second mode during decoding of a turbo code block and responsive to a second control signal for switching from the second mode to the first mode to allow continued decoding of the turbo code block.
- 15 2. A decoder (203) according to claim 1, wherein the decoding element (208) is arranged to store data generated during the decoding of the turbo code block.
- 20 3. A decoder (203) according to claim 2, wherein the decoding element (208) arranged to retrieve the stored data generated during the decoding of the turbo code block to allow continued decoding of the turbo code block.
- 25 4. A decoder (203) according to claim 1, wherein the decoding element (208) is arranged to switch from the first mode to the second mode after an iteration of the decoding of the turbo code block has been complete.
- 30 5. A decoder (203) according to claim 1, wherein the decoding element (208) comprises a first logic element that is arranged to calculate forward recursion/backward recursion metrics for a turbo encoded data stream when the decoder element is operating in the first mode and to calculate

5 path metrics and survivor path metrics for a viterbi encoded data stream when the decoder element is operating in the second mode.

6. A decoder (203) according to claim 2, wherein the decoding element (208)
further comprises a second logic unit that is arranged to calculate a
10 posteriori data for a turbo encoded data stream using the forward
recursion/backward recursion metrics generated by the first logic unit.

7. A decoder (203) according to claim 2, wherein the decoding element (208)
further comprises a memory that is arranged to store forward
15 recursion/backward recursion metrics generated by the first logic unit when
the decoding element (208) is operating in the first mode and to store path
metrics and survivor path metrics generated by the first logic unit when the
decoding element (208) is operating in the second mode.